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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/660,348	09/11/2003	Zhifeng Ren	2846/2112	5141
29932	7590	04/01/2005	EXAMINER	
PALMER & DODGE, LLP PAULA CAMPBELL EVANS 111 HUNTINGTON AVENUE BOSTON, MA 02199			MCNEIL, JENNIFER C	
			ART UNIT	PAPER NUMBER
			1775	

DATE MAILED: 04/01/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/660,348

Applicant(s)

REN ET AL.

Examiner

Jennifer C McNeil

Art Unit

1775

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 31 January 2005.
2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-24 and 55-84 is/are pending in the application.
4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5) ☒ Claim(s) 55-84 is/are allowed.
6) ☒ Claim(s) 1-6 and 10 is/are rejected.
7) ☒ Claim(s) 7-9 and 11-24 is/are objected to.
8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Election/Restrictions

Applicant's election of Group I (claims 1-24) in the reply filed on January 31, 2005 is acknowledged. Applicant submitted new claims 55-84 which are included in Group I. Applicant's cancellation of claims 25-54 is acknowledged.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1-6, and 10 are rejected under 35 U.S.C. 102(e) as being anticipated by Wang et al (US 6,863,943). Wang teaches a metal oxide nanostructure having a three dimension periodic orientation. The structure is a freestanding helical nanobelt of rectangular cross section. The oxide may include both zinc oxide and indium oxide. The oxide may be doped with tin.

Allowable Subject Matter

Claims 7-9, 11-24 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claims 55-84 are allowed.

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The following is a statement of reasons for the indication of allowable subject matter: the prior art of record does not teach or render obvious a metal oxide material comprising a central three-dimensional nanostructure having a linear axis formed from at least one metallic oxide and a plurality of three dimensional nanostructures formed from at least one metallic oxide wherein a distal end of the plurality of three-dimensional nanostructures is attached to the central three-dimensional nanostructure. The closest prior art of record to Wang '943 teaches a helical oxide as discussed above. The prior art of Alivisatos teaches a nanocrystal particle including a core and arms extending from the core, but does not teach an oxide composition, and provides no motivation to form the structure from a metallic oxide. Neither reference teaches or provides motivation for a central three-dimensional nanostructure with a linear axis of a metallic oxide and a plurality of three-dimensional nanostructures formed from at least one metallic oxide wherein a distal end of the plurality of nanostructures is attached to the central nanostructure.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jennifer C McNeil whose telephone number is 571-272-1540. The examiner can normally be reached on 9AM-6PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Deborah Jones can be reached on 571-272-1535. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Jennifer McNeil
March 28, 2005